0.1 Typical classroom mechanics

A usual 50 minute class consists of two kinds of time: some time when the students are working in groups of 3 or 4 on a problem or worksheet (set of problems) and some time when the entire class is discussing the problem set. Some instructors enjoy keeping to a familiar rhythm, spending the initial 25 to 30 minutes each day working in small groups, then spending the latter part of the lesson in a large group discussion detailing what the various small groups found, where they got stuck, and so forth. Often there are parts of the worksheet that are not covered in this phase; some of these are assigned for homework and some are discarded. Other instructors prefer to go back and forth a little more, starting in a small group, then convening the large group when most small groups are done with the first problem, discussing it a bit, then remanding the class into small groups, and so on. When a class meets for 75 minutes twice a week instead of 50 minutes three times a week, it is usually necessary to go back and forth this way, and it is also often convenient to continue a large group discussion from the end of one class at the beginning of the next.

During the small group working time, the instructor circulates among the groups, answering questions when necessary, doling out encouragement when necessary, challenging the students to justify what they claim to have figured out or to explain their half-baked ideas. Often the mere presence of the instructor encourages a renewed attack on a problem.

The large group discussion begins with the students explaining what they have done. Other students are required to listen carefully and to register agreement, disagreement or lack of comprehension. Once the explanation is comprehensible, those in disagreement are encouraged to justify their disagreement, with the aim of a resolution or synthesis. The instructor plays moderator as long as fruitful ideas are being produced, but slips into the role of leader when needed. For example, if no one challenges something wrong, or if there is a disagreement but it is too inarticulate to produce a good synthesis, then the instructor may rephrase what has been said so as to sharpen the contradiction or caricature a wrong approach, in a way that forces a light to dawn for at least some students.